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LABCAIRE
For Tomorrow's Environment

VLF

Recirculating Vertical Laminar Flow Cabinet

Models: VLF8R, VLF12R, VLF18R, PCR8

Operators Manual

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Puricore International Ltd 175 Kenn Road Clevedon North Somerset BS21 6LH
Tel +44 1275 793000 | **Fax** +44 1275 341313 | labcaire@puricore.com | www.puricore.com
Registered in England No: 2695450

CE Marking certifies that this equipment conforms to the following EEC directives: -
Low Voltage Equipment – 72/23/EEC & 93/68 EEC
Electromagnetic Compatibility – 89/336/EEC

Certificate No: 0954499

CONTENTS

INTRODUCTION 4
- Description Of Cabinet 4
- Product Protection 4
- Specifications 4
- Operator Protection 5
- Services 6

INSTALLATION 7

TESTING / COMMISSIONING 8

OPERATION 9
- Initial Start Up 9

MEMBRANE CONTROL PANEL – 10
- VLF8R,12R 18R & PCR8 10
- Screen Displays 10
- Start Up 10
- Menu Screens 11
- Alarm Screens 12
- Operation of services (Optional Items) 13
- Replacement Fluorescent & UV Bulbs Part Numbers 14

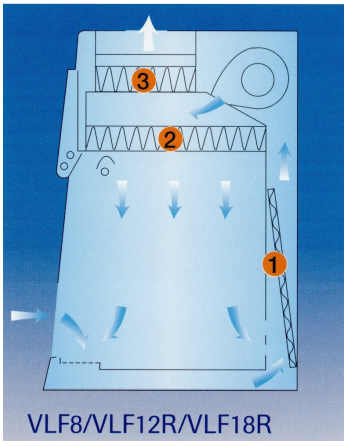
FILTERS 15
- Pre-filter 15
- Main Filters 15
- Exhaust Filter 15
- Replacement Filter Part Numbers 15

MAINTENANCE 17
- Fluorescent Light 17
- Services 17
- Pre-filter 17
- Main filter, Exhaust Filters, Recalibration of Alarms etc. 17

INTRODUCTION

DESCRIPTION OF CABINET

The recirculating Vertical Laminar Flow units have been designed to provide both full product protection to BS5295 and operator protection to BSEN12469:2000



VLF8/VLF12R/VLF18R

PRODUCT PROTECTION

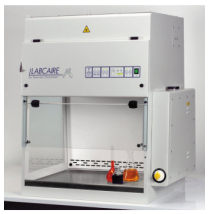
A Hepa "V" filter is mounted at the top of the work area which filters the down flow air to 99.997% efficiency at 0.3 micron particles. The air is drawn downwards and then passes through the front and rear outlet grilles adjacent to the work surfaces.

SPECIFICATIONS

Specifications	VLF8R	VLF12R	VLF18R	PCR8
External Dimensions *without Service Module* mm (WxDxH)	800 x 710 x 1215	1200 x 710 x 1360	1800 x 710 x 1360	800 x 710 x 1060
Work Area Size mm (WxDxH)	790 x 610 x 610	1190 x 610 x 610	1790 x 610 x 610	790 x 610 x 610
Compliance to BS5295	☑	☑	☑	N/A
Containment to BS EN 12469:2000	☑	☑	☑	☑
CE Marking	☑	☑	☑	☑
Better than Class 100 Clean Air	☑	☑	☑	☑
Better than Class 10 Clean Air	Optional	Optional	Optional	N/A
Base Stand	Optional	Optional	Optional	Optional
Face Velocity	>0.6m/sec	>0.6m/sec	>0.6m/sec	>0.6m/sec
Laminar Downflow Velocity	>0.4m/sec	>0.4m/sec	>0.4m/sec	>0.4m/s
Membrane control panel	☑	☑	☑	☑
Night door with safety interlocks	Optional	Optional	Optional	Standard
Fluorescent Lighting	2 x 18w	2 x 30w	2 x 58w	2 x 18w
UV Lighting	Optional	Optional	Optional	Standard
Services Module	Optional	Optional	Optional	N/A
Easy change Pre-filters	☑	☑	☑	☑
Power Consumption	450W	700W	1300W	450W
Noise Level	<60db(A)	<60db(A)	<65db(A)	<58db(A)

OPERATOR PROTECTION

The front of the cabinet is fitted with a glass screen to form a working aperture. The cabinet is maintained under a small negative pressure by exhausting air from the top of the cabinet through a 99.997% efficiency at 0.3 micron particles HEPA filter. The equivalent amount of air is drawn through the front aperture to provide containment.



The containment of this cabinet meets the requirements of BSEN12469:2000 and has been tested using the **Four-Head KI Discuss Equipment.**

The cabinet is NOT a full class II unit and the method of use and work being carried out should be determined by the safety officer

A. Care must be taken that air is not drawn out of the cabinet by the movements of the operator, or personnel walking past the unit close to the aperture.

B. The aperture is not subjected to external airflow movements such as open windows, doors, ventilation ducts etc.

C. The equipment is correctly maintained in line with the manual supplied.

D. Modifications are not carried out to the unit without the written consent of the manufacturer.

For the purposes of delivery and installation the cabinet will pass through a 715mm wide doorway.

SERVICES

A teardrop opening is fitted as standard on the right hand side panel. This allows a plug to be passed from inside to outside the cabinet allowing equipment to be plugged into adjacent sockets.

U.V. Light

U.V. light will cause burns to skin and damage eyes in a very short period of time. The U.V. light must only be used when the closing panel is in place.

VLF8R, VLF12R, VLF18R (Optional)

The U.V. light is interlocked with the night door and fluorescent light and has a timed 4 hour cycle or and may be switched on/off from the control Panel. When the UV light is fitted, a night door-closing panel is supplied.

PCR8

The U.V. light is germicidal with a wavelength of 254 Nm. The tube is 15 watts. The U.V. light is interlocked with the night door and fluorescent light and has can be set for timed periods up to 1 hour.

The lamps will deteriorate with use at a rate of 5% per thousand hours. LAMPS SHOULD BE REPLACED AT 1000 hrs APPROX.

NOTE: The lamp will still emit blue light even when efficiency is greatly reduced.

CAUTION

DO NOT EXPOSE SKIN OR EYES TO U.V. RADIATION FROM THIS LAMP

The cabinet can be supplied with a services module to provide the following:-
(not fitted on PCR8 units)

1. **Electrical Outlet Socket**
   This is a single socket 3Amp rated 240V AC Splash proof outlet. The outlet is operated from the control panel

2. **Natural Gas Tap**
   This is provided through a bulkhead outlet via a solenoid valve, which will automatically close on interruption of mains supply. The solenoid valve is operated from the control panel

THE GAS SERVICES MUST BE CONNECTED AND CHECKED BY AN APPROVED ENGINEER.

Other Services may be fitted if specified at time of ordering.

INSTALLATION

The cabinet is supplied with a mains lead and plug for connection to a mains supply 230v AC 50 Hz

Models VLF8R, VLF12R, VLF18R, PCR8

ii) The cabinet is designed to recirculate back into the room due to the provision of an exhaust HEPA filter.

iii) The sitting of the cabinet is important with regards to protection from external airflows from widows, ventilation systems etc.

If further information is required contact Puricore International Ltd.

TESTING / COMMISSIONING

The cabinet will be supplied with an Electrical Test Certificate. To comply with BSEN 12469:2000, the cabinet will require testing after installation including:-

Commissioning should include:-

A. Airflow Tests
B. Checking Of Alarms
C. Filter integrity tests (D.O.P. equipment)
D. Testing / Examination of services as applicable

A test certificate will be issued which is valid for 14 months.

NOTE
A KI Discus test for operator protection can also be carried out if required. This will depend on the work to be carried out in the cabinet

OPERATION

Before use, the operator should be familiar with the membrane control panel and alarms.

The work to be carried out in the cabinet should be determined and agreed with the Safety Officer of the laboratory - prior to the use of the cabinet.

The cabinet should be cleaned and all the surfaces wiped with alcohol or proprietary cleaning / disinfecting agent, as required or at least on a monthly basis

The stainless steel work surface is removable in the case of accidental spillage through the airflow grilles.

INITIAL START UP

In order to purge the air inside the cabinet it should be run for at least 10 minutes to reach maximum cleanliness.

The low airflow alarm will stay on for 20-30 seconds at "switch on" to allow the monitoring sensors to reach normal operating temperatures.

The cabinet must be tested for compliance annually - to meet COSHH regulations - see section on servicing.

THE CABINET MUST NOT BE USED WHEN IN AN ALARM CONDITION.

MEMBRANE CONTROL PANEL –
VLF8R,12R 18R & PCR8

The cabinet will start in a programmed mode when the mains switch is operated.

The airflow "LED" display will show red until the safe operating condition is reached. The display will then change to green.

Alarm Mute
This button will mute the alarm.

Internal Lighting Button
Press this button to turn on the internal lights within the cabinet.

Gas Outlet Control Button
This button controls the gas flow to the outlet tap. Press to turn on and the green indicator above the button will illuminate

Electrical Socket Button
This button controls the power to the electrical socket. Press to turn on and the green indicator above the button will illuminate, the orange neon above the socket will also illuminate as a warning that the socket is active.

Menu Options
This will display the various menus.

SCREEN DISPLAYS

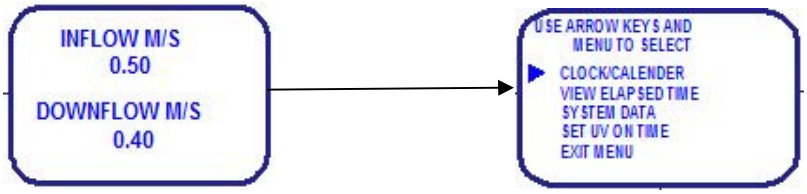
START UP

When the key switch is turned on, the following screens will appear as the unit warms up, initially the screen will say inflow/downflow low and the alarm light will show until the fan is up to the correct speed and the flow rates are correct ready for use.

The final screen is 'Normal run screen' and should be displayed when the unit is in use.

MENU SCREENS

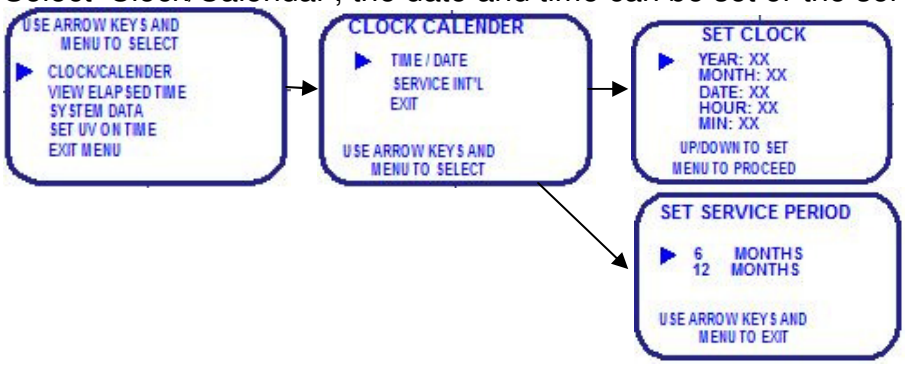
Press the main menu button the control panel for 5 secs.



Press the Up or Down keys to select, then press menu button to display new screen

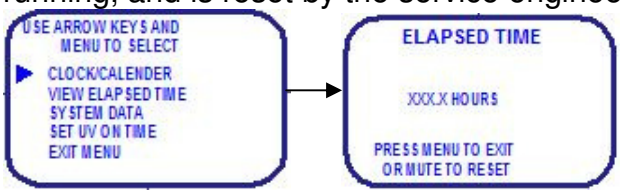
Clock/ Calender

Select 'Clock/Calendar', the date and time can be set or the service interval required.



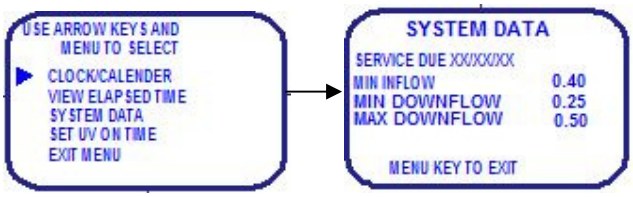
View Elapsed Time

Select 'View Elapsed Time', the display will show the hours the cabinet has been running, and is reset by the service engineer.



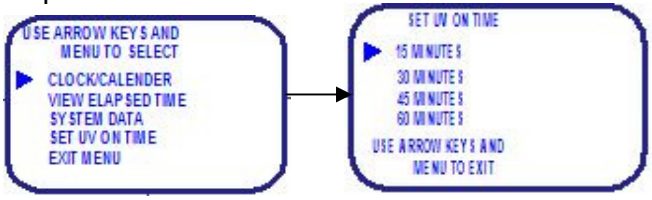
System Data

Select 'System Data', the display will show the service due date, and the running criteria for the alarms.



Set UV on Time

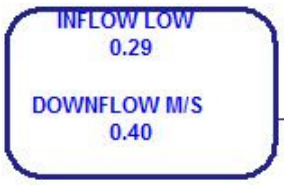
Select 'Set UV on Time', the display will allow the up/down keys to select the required on time for the UV. Press Menu to set and exit.



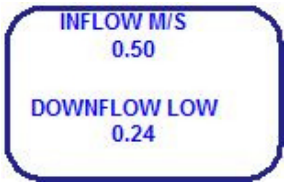
Exit Menu - can be used at any time to return to the 'Normal Run Screen'

ALARM SCREENS

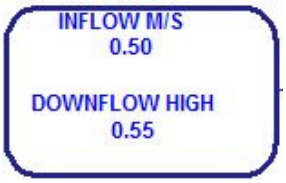
Both the inflow and the downflow air are constantly monitored. If either of these go below the minimum or maximum set then an alarm will be displayed and the audible alarm activated.



Alarm low inflow



Alarm low downflow



Alarm high downflow

If the front screen is in the incorrect position for normal use then an alarm is given

An alarm screen will also be displayed when the service is due, this will be reset by the engineer when servicing the cabinet.

For recirculation units, the carbon filter will require changing after 5 fumigations have been done, an alarm screen will be displayed to remind the operator.

There are also screens for the operation of the UV, fumigation and calibration of the unit. These are shown in the relevant sections.

OPERATION OF SERVICES (OPTIONAL ITEMS)

Auxiliary Power Socket
This is operated by pressing a button on the control panel. An indicator lamp shows when power is on. The fuse rating is 3 Amp.

> ***Note***
> ***The use of hot plates will increase the operating temperature of the cabinet as 70% of the air is re-circulated. The cabinet will run less than 4°C above ambient in normal use.***

Natural Gas
The gas supply is turned on by pressing the switch on the control panel to operate the safety solenoid valve in the supply line. Interruption of the electrical supply will close the solenoid valve and prevent heat damage to the HEPA Filters.

Notes

1. *The gas regulator panel valve should be closed when the gas is not required. Do not rely on the solenoid valve.*
2. *After interruption of the electrical supply the gas regulator valve will be in the open position. Close before operating the control panel supply switch.*
3. *It is recommended that "touch" gas burners be used in the cabinet as a safe method for use with a gas burner.*
4. *Do not position the gas burner close to the sides of the cabinet.*
5. *Gas services should only be installed maintained and repaired by experienced engineers. Regulation in the U.K. specifies a "CORGI" registered engineers.*
6. *If a leak is suspected turn off the supply at the laboratory stopcock and inform the gas engineer. Do not operate any electrical switches until the room has been ventilated.*

UV Light
The use of U.V. radiation to sterilise cabinets is not recommended in BS5726:1992

U.V. Rays are only efficient with humid bacteria and not suitable for dry organisms. The efficiency is reduced by many variables including presence of dirt, angle of light to surfaces, hidden surfaces are not affected etc. The filters, head unit etc are not sterilised.

U.V. Germicidal light (254nm) is hazardous and the following guidance is given: -

1. U.V. rays can damage skin and tissue in a very short period of exposure.
2. The night door is interlocked with the U.V. light switch.

3. The U.V. light is interlocked with the fluorescent light so both cannot be on at the same time.
4. U.V. Light can damage plastic containers.
5. The U.V. Light should be replaced after 1000 hours of use. After this time blue light is still emitted but efficiency is reduced.

Operation of U.V. Light

1. Switch cabinet off.
2. Fit the Night Door (Check sealing strip is not damaged).
3. Switch the cabinet on, the door shut screen will be displayed

4. Use the up/down keys to select the UV function, press menu to start UV
5. After the pre set UV run time, the UV light will switch off and the fluorescent lights come on.
6. Remove the Night Door and the cabinet will now run in normal mode.
7. Change the U.V. tube every 1000 hours. A warning screen will be shown

Other Services

Additional services can be fitted to the cabinet. Please contact Puricore International Ltd for further advice on 01275 793000.

Replacement Fluorescent & UV Bulbs Part Numbers

Cabinet	Fluorescent Bulbs	UV Bulbs
VLF-8R	GS40048	GS40011
VLF-12R	GS40021	GS40009
VLF-18R	GS42046	GS40008
PCR8	GS40048	GS40011

FILTERS

When new, the cabinet has all filters fitted. When replacement is required, the pre-filter can be changed by the user but the HEPA filter should only be done by a trained service engineer. The filters should be tested after fitting with DOP or another suitable process. The filter seals are under negative pressure to eliminate seal leakage to the cabinet or the laboratory.

PRE-FILTER

A pre-filter is fitted which filters all the air passing through the cabinet.
The low airflow alarm will indicate the pre-filter requires changing. Care should be taken when changing the pre-filter depending on the use of the cabinet.
The pre-filter is accessed by unlocking the back panel and resting it on the work surface. Remove the pre-filter and seal in a plastic bag. Insert the new pre-filter and refit the back panel.
Protective clothing especially gloves should be worn and if toxic materials have been used then spraying the pre-filter with a lacquer will prevent shedding of the dust.

MAIN FILTERS

The main filter is a HEPA filter with efficiency of 99.997% at 0.3-micron particles. Excess heat or UV radiation can damage the filter.

EXHAUST FILTER

The exhaust filter is a HEPA filter with efficiency of 99.997% with 0.3-micron particles.

REPLACEMENT FILTER PART NUMBERS

Cabinet	Pre-filter	Main Filter	Exhaust filter
VLF-8R	LA-5713	LA-5721	LA-5720
VLF-12R	LA-5813	LA-5821	LA-5820
VLF-18R	LA-5913	LA-5921	LA-5920
PCR8	LA-5713	LA-5721	LA-5720

SERVICING

An annual service is recommended and testing is mandatory under COSHH regulations and will cover the following points: -

1. Check condition of pre-filter / replace.
2. Checking and re-calibration if necessary of the low airflow alarm.
3. Airflow checks and re-set if necessary.
4. Filter condition check by DOP.
5. Inspection of electrical components, lighting, cables etc.
6. Cleaning and checking the condition of the glazing, hinges etc.
7. Examination of fitted services.
8. Issuing of a test report complete with an airflow certificate.

Optional KI Discus Containment Check

PURICORE have a national team of service engineers who can offer a comprehensive service at very competitive rates on all types of equipment from air purifiers and fume cupboards to safety cabinets and clean rooms.

MAINTENANCE

The opening of latches with the special key supplied can expose live electrical terminations.
Work should be carried out by a trained engineer / electrician. Access requires the use of a special key supplied with the cabinet

FLUORESCENT LIGHT

The light is external to the chamber and is accessed by undoing the latches on the control panel cover. The starter is also inside this compartment. The panel hinges upwards to allow access and can be held open with the catch at the left hand side.

SERVICES

The services are located in the side module with its own access panel. Gas services must only be maintained by a registered gas engineer. (CORGI Registered in the UK).

PRE-FILTER

The pre-filter is accessed by undoing the latches on the rear panel of the chamber and lifting off the panel.

MAIN FILTER, EXHAUST FILTERS, RECALIBRATION OF ALARMS ETC.

These functions can only be carried out by trained personnel. A Maintenance Manual is available for trained qualified personnel from Labcaire Systems Ltd.

THE CABINET MUST BE FULLY RE-TESTED AFTER ANY CHANGING OF FILTERS OR RECALIBRATION OF THE CONTROL SYSTEM

Puricore International Ltd

175 Kenn Road, Clevedon, North Somerset, BS21 6LH England

UK Tel: (01275) 793000
INT Tel: +44 1275 793000

UK Fax: (01275) 341313
INT Fax: +44 1275 341313

E-mail: labcaire@puricore.com

Website: http://www.puricore.com

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